

Studies on prevalence of dengue fever infected individuals in some areas of Vijayawada, Krishna District, Andhra Pradesh, India.

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Abstract:

Dengue infected cases in Government and Private hospitals of Vijayawada in four specified areas are selected and prevalence study of the same are reported. The maximum peak was observed in the month of October in private and Government hospitals of Vijayawada during the year 2010 to 2011. The maximum number of cases in males and females were too found in the month of September, October and November in private and government hospitals of Vijayawada.

Key words: Dengue, Prevalence, Private, Government hospitals, Vijayawada.

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I. Introduction

Dengue is the fastest emerging infection amongst all vector-borne diseases because of several human and environmental factors found in tropical and sub-tropical regions around the world. In recent years, transmission has increased predominantly in urban and semi-urban areas and has become a major international public health concern. Severe dengue (also known as Dengue Haemorrhagic Fever) was first recognized in the 1950s during dengue epidemics in Philippines and Thailand.

The incidence of dengue has grown dramatically around the world in recent decades. Over 2.5 billion people, 40% of the world's population – are now at risk from dengue. WHO currently estimates that there may be 50–100 million dengue infections worldwide every year. In 2012, as many as 24 Indian states were hit by dengue. It caused 37,070 confirmed cases of dengue and a total of 227 deaths were reported.

Dengue fever and dengue hemorrhagic fever (DF/DHF) are caused by the dengue viruses, which belong to the genus *Flavivirus*, family *Flaviviridae*. The first dengue viruses were isolated from soldiers who became ill in Calcutta, India, New Guinea, and Hawaii. The viruses from India, Hawaii, and one strain from New Guinea were antigenically similar, whereas three other strains from New Guinea appeared to be different. There are four antigenically related, but distinct, dengue virus serotypes (DEN-1, DEN-2, DEN-3 and DEN-4), all of which can cause DF/DHF (Gubler, (1997); (1988). The complete analyses undertaken to date show that the four serotypes of dengue virus are phylogenetically distinct, and often to the same degree as different "species" of flaviviruses (Holmes & Twiddy, 2003).

II. Materials and Methods:

Detection of dengue infection was estimated by Rapid visual test for identification of Dengue NS1 Antigen and differential detection of IgM / IgG antibodies in Human serum by Dengue DAY 1 Test (Young, 2000; Guzman, 1996).

III. Procedure:

Dengue DAY 1 Test kit and sample should be at room temperature before testing. The foil pouch on the test card was removed. Patient's name and identification number was labeled on the test card. Dengue NS1 antigen device: 2 drops of sample was added using Dengue antigen test sample dropper to the sample well of antigen device. The test card was allowed to complete the reaction in 20 minutes. Results were read at 20 minutes. Positive results may appear as early as 2-10 minutes but for negative results must be conformed only after 20 minutes.

Dengue IgM/IgG test device: The dengue antibody lower circular part of the sample dropper was filled with the specimen upto the mark on the dropper. Then the specimen to the sample well was added. Two drops of dengue antibody assay buffer was added to the buffer well "B" on the device. The test card was allowed to complete the reaction in 20 minutes. Results were read at 20 minutes. Positive results may appear as early as 2-10 minutes but for negative results must be conformed only after 20 minutes.

The samples are collected from Private and Government hospitals of Vijayawada.

IV. Results and Discussion:

The prevalence rate of dengue positive cases were studied in Private and Government hospitals of Vijayawada for the years 2010 and 2011 are presented graphically as figures 1, 2, 3 and 4 . The epidemiological studies of dengue virus were not able to get the actual total number of cases. Because all the dengue cases were not identifiable due lack of knowledge in the society. The number of blood samples collected in January, (in figure 1) were high and gradually decreased up to May and slowly increased from the month of June and July a sudden decrement in August and blood sample collection increased from September to October and again decreased in November and December.

The number of positive cases was equal in January and February but according to gender wise equal number of positive cases was noted in January and slightly increment of dengue positive cases in Male gender than in female gender as in figure 2, totally nil dengue positive cases were observed in March, April, May due to high temperatures in summer season but with the change of the monsoon the number of positive cases were reported high in June, July, August, September and October. According to gender wise; male gender has more positive cases than in female gender.

But the number of positive cases decreases in November and decrement continues in the month of December also. But male gender have high incidence of dengue cases with that of female gender in November and December in the year 2010.

The dengue positive prevalence rate in Government hospital in 2010 figure 3, have slight variations with that of the private hospitals. Number of blood samples are decreased from the month of January to May and gradually increased from June, July, August and very high in September and October but reduced in November and December.

Dengue positive cases are decreased from January to June and slowly rise from July, August, September and October and again decrement in November and December.

Based on the number of positive cases in the month of January female gender have more cases than in male gender but from February to December male gender have more prevalence than in female gender.

The decrement continues in the year 2011 from January to May in the private hospital figure 4. Very less number of positive cases was reported. Female gender has more cases than in male gender from January to May but nil cases in March, April and May.

A gradual increase in blood sample collection and number of dengue positive cases in the year 2011 June, July, August, September and October. Male gender has more positive cases than in female gender figure 4, but the dengue blood sample collection and positive cases is reduced in the month of November and December in the year 2011. Male gender has more cases in these months than in female gender.

For the year 2011 figure 4 the blood samples collected for dengue identification month wise are decreased from January and continue to the month of July and from August gradual increment up to September and October and again decrement in November and December. Dengue positive cases were less in January to March and total nil cases in April, May, June, and July further slowly rises from August to September and decreases in November and December. Male gender have high positive cases than in female gender from January to March and August to December but in April, May, June, July has nil cases.

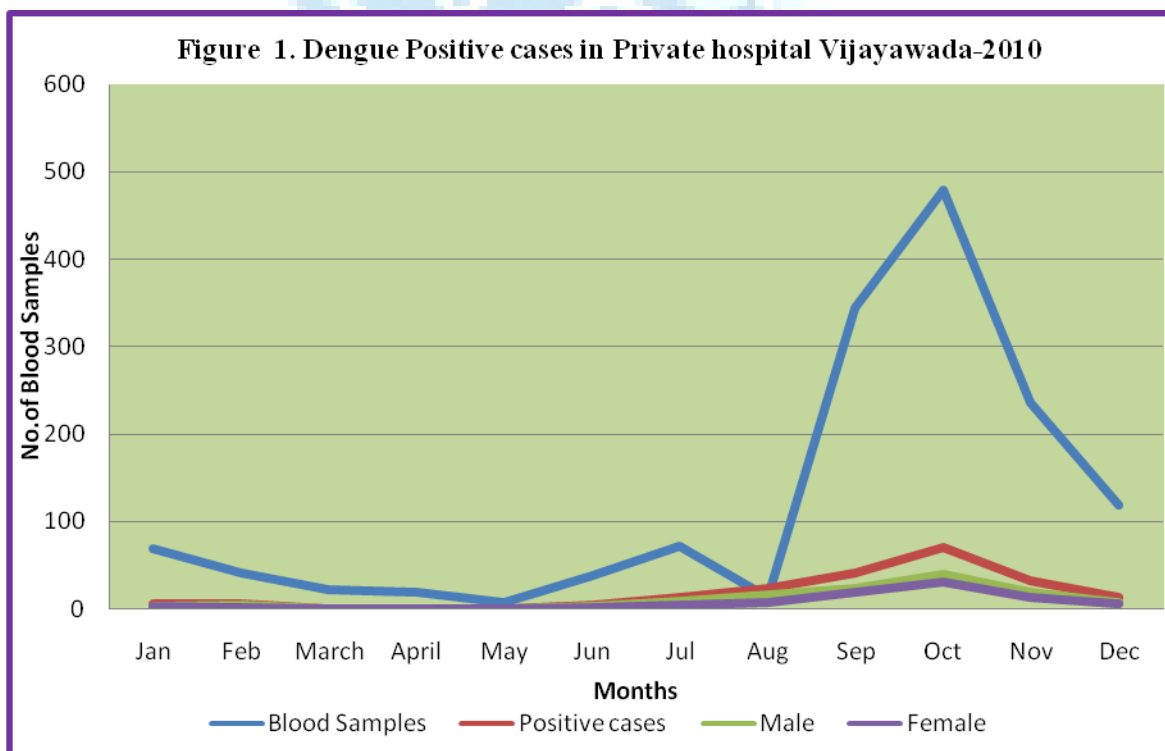
Number of cases of Dengue infection in Vijayawada during the outbreak in 2009 was more than fifteen hundred out of which 3 deaths were reported (nvbdcp.gov, 2010). Only 40 patients who are positive for dengue infection were included with no other co-infections or metabolic disturbances like Diabetes or who are at the age above 15 years during the study period. In accordance with earlier studies, maximum percentage of cases (50% in October) were reported in the post monsoon months (Chakravarti, Kumaria, 2005) It was observed in our study that mean age group and gender in cases of Dengue Shock Syndrome (33.6) was lower in contrast to Dengue hemorrhagic fever (31.3), and dengue fever (33.75). It can be suggestive of the fact that exposure to dengue infection by different serotypes might be occurring at an early age in Delhi. In the present study, a higher percentage of females were noted in DHF and DSS. Gender is not considered a factor among milder secondary dengue infections. Hence, possibly this gender difference may reflect underlying differences in the immune responses of males and females. In the present study clinical manifestations observed in Dengue infected subjects in were Fever (100%) was the chief complaint in all cases followed by body aches (57%), pain in abdomen (44.95%), vomiting (39.5%), Body ache / Fatigue

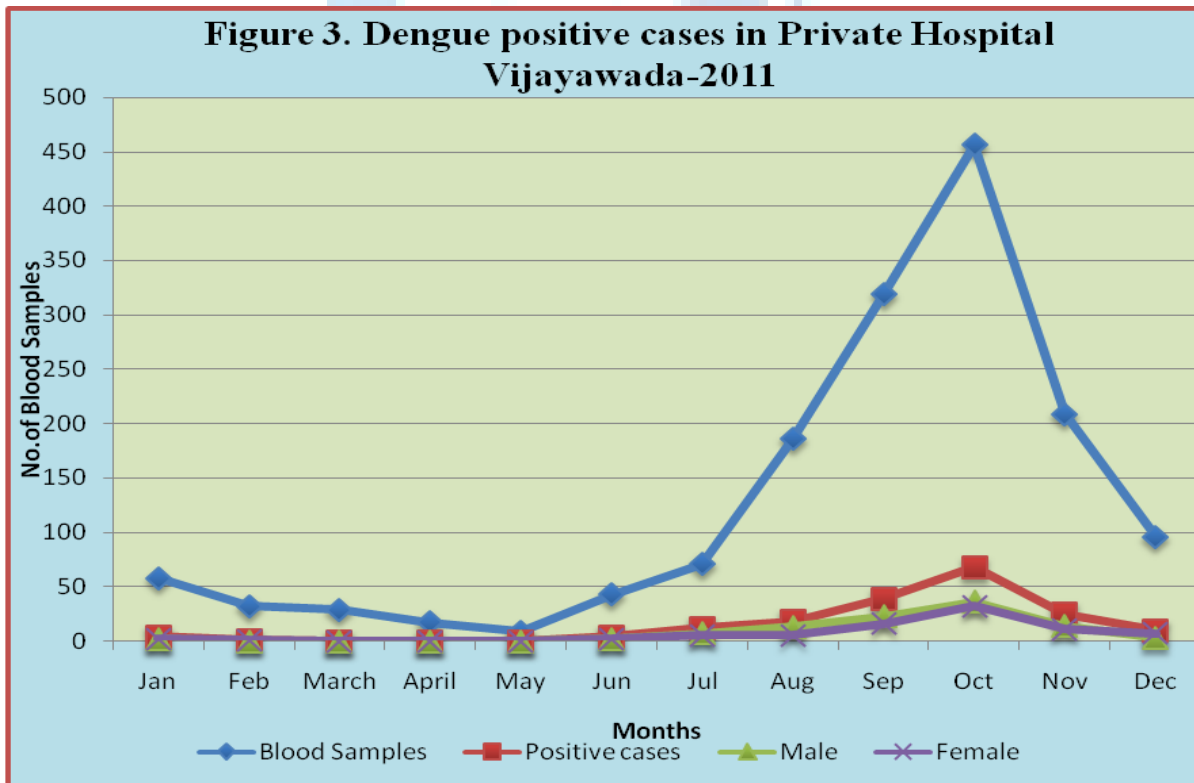
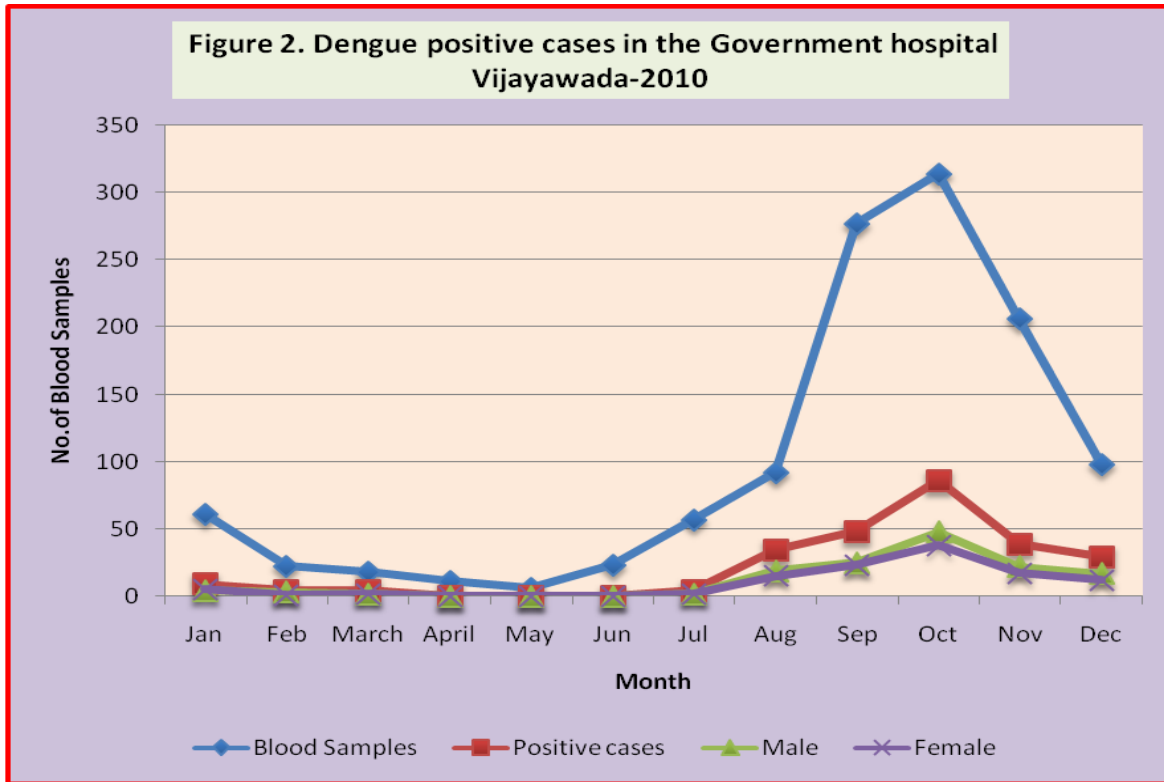
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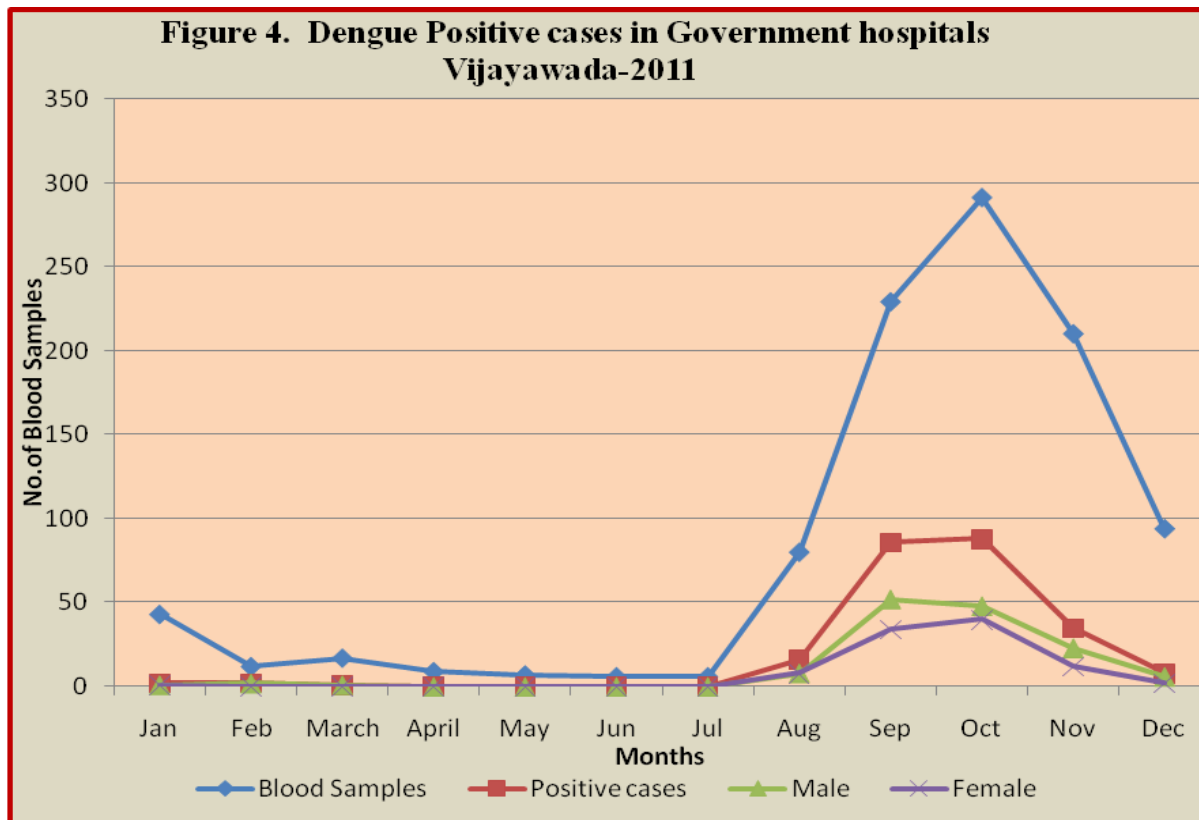
(26.5%); Head ache (13.7%), Joint pain (8.22%), Retro orbital pain (5.54%), Rash (32.5%), facial puffiness (36.2%) and rashes (36%) while 6.8 % had mucosal bleeding.

Early diagnosis on the basis of clinical picture and history of mosquito bite is helpful but appropriate serological diagnosis for the DF/ DHF is more important particularly with reference to quick treatment procedure as it is evident that the patient may die within 12 – 24 hours if not treated promptly (Mahmood *et al.*, 2009).

Our findings show that the seroprevalence ratio of dengue infected patients, on the basis of clinical appearance. Prevention is better than cure. Before applying any prophylactic measures education and counseling seeking professional and medical help in a given area are the two parameters one has to weigh. Knowledge on what it infects, how it infects, where it infects to whom it infects, then only the programme as remedy to be implemented. This is what, how, where and to whom, questioned thoroughly investigated and such pebbles of study can explore the new vistas that can be contemplated. Basic knowledge of infection, awareness and severity of situation can argument medical treatment at a wright time. It is a today's and tomorrow's demand that interdisciplinary communication between health professionals, veterinarians, environmental scientists, ecologists, geographers and economists seeking to understand climatic change that will be key to protecting people in India and worldwide against these threats. Dengue infection is under reported because of unavailability of diagnostic facilities in remote and interior areas and also due to high cost in private sectors.







References:

- [1] Gubler, (1997). Dengue and dengue hemorrhagic fever: its history and resurgence as a global public health problem. 1 - 22. In: Gubler DJ, Kuno G. *Dengue and Dengue Hemorrhagic Fever*. CAB International, New York, New York, USA.
- [2] Gubler, (1988). Dengue. 223 - 260. In: Monath TP *The Arboviruses: Epidemiology and Ecology. Volume II*. CRC Press, Inc., Boca Raton, Florida.
- [3] Holmes and Twiddy, (2003). The origin, emergence and evolutionary genetics of dengue virus. *Infect Genet Evol.* 3(1): 19 - 28.
- [4] Young, P.R. (2000) *J. Clin. Microbiology*. 38 (3): 1053-1057.
- [5] Guzman, M.G. (1996). *Clin. Diagn. L. Immunol.* 3 (6): 621-627.
- [6] National Vector Borne Disease Control Programme. <http://nvbdcp.gov.in/material.html>
- [7] Chakravarti A, Kumaria R. (2005). Eco-epidemiological analysis of dengue infection during an outbreak of dengue fever, India. *Vir. Jor.* 32 (2): 1-7.
- [8] Mahmood, K. Jameel, T., Aslam, H.F. and Tahir (2009). Incidence of dengue haemorrhagic fever in local population of Lahore, Pakistan. *Biomed.* (25): 93-96.